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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/216,214    12/18/98    HAVEMANN    R    TI-21570

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EXAMINER

TRAN, T

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 06/14/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/216,214

Applicant(s)  
Havemann

Examiner  
Thien Tran

Group Art Unit  
2811



- ☐ Responsive to communication(s) filed on \_\_\_\_\_
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle* 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claim

- ☒ Claim(s) 8-27 \_\_\_\_\_ is/are pending in the application.
- Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 8-27 \_\_\_\_\_ is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some\* ☒ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s) \_\_\_\_\_
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 8-9, 11, 13, 15, 17, 19, 21, 23, and 25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The recitation of “entirely covering said gate” in claims 8 and 9 can be interpreted as setting forth structure not supported by the specification. The specification only supports a conductive metallic material covering two sidewalls and a top surface of the gate.

The recitation of “said source/drain regions are aligned with said sidewall of said polysilicon gate” in claim 11 can be interpreted as setting forth structure not supported by the specification. The specification supports a structure with source/drain regions formed by implantation using metal on the sidewalls of the gates as a mask to prevent a portion of the

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substrate from receiving the implant. As a result, the source/drain regions are not aligned with the sidewalls of the gate.

Claims 13, 15, 17, 19, 21,23, 25 are necessarily rejected since these claims directly or indirectly depend upon the rejected base claims.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 8 recites the limitation "said gate" in lines 6, 7 and 9 . There is insufficient antecedent basis for this limitation in the claim.

6. Claim 9 recites the limitation "said gate" in lines 6, 7 and 9 . There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 8-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai (US 5,841,174) in view of Watabe et al. (US 4,727,038) and Tada (JP 4-42938).

Arai discloses a transistor gate structure (Figs. 2B, 3A) comprising a gate dielectric 103 over a semiconductor region 101; a patterned gate 104a of polysilicon over said gate dielectric, wherein said gate dielectric has thicker portions at the corners of said patterned gate than under central region of said patterned gate (Fig. 3A); and source/drain regions 107a in said semiconductor region defining a channel under said patterned gate. Arai does not disclose a unitary electrically conductive metallic material covering sidewalls and a top surface of said patterned gate. It is old to form a transistor gate structure comprising a unitary electrically conductive metallic material of titanium silicide covering sidewalls and a top surface of a patterned gate as shown for example by Arai (Figs. 9A-9E) and Tada (Fig. 1G). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the conventional feature (unitary electrically conductive metallic material of titanium silicide) onto the sidewalls and the top surface of the patterned gate 104a of Arai in order to derive a portion of hot carriers through the gate electrode, and therefore the MOS transistor device whose transconductance is not degraded by hot carrier injection is obtained. The source/drain regions are not aligned with said sidewalls of said patterned gate. However, it is old and well known in the art to form source/drain regions aligned with the patterned gate. Therefore, forming source/drain regions aligned with the sidewalls of the patterned gate would

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have been prima facie obvious. Arai further discloses a lightly doped source/drain extension (n--region) of each of said source/drain regions 107a extending under said polysilicon gate 104a.

The claim limitation "lateral growth" in claims 8 and 9 is taken to be a product by process limitation and is given no patentable weight. A product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al., 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process" claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old and obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.


### *Conclusion*

9. **Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.**

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Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Thien Tran* whose telephone number is **(703) 308-4108**. The Examiner is in the Office generally between the hours of 7:00AM to 5:30PM (Eastern Standard Time) Monday through Thursday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **(703) 308-0956**.

  
Tom Thomas  
Supervisory Patent Examiner  
Technology Center 2800

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June 8, 2000